

## Side effects of compression stockings:

### a case report

#### INTRODUCTION

Compression stockings play an important role in the management of venous disease, venous ulcers, and preventing thromboembolic disease of the deep venous system in the legs<sup>1</sup>. Most patients admitted to hospital are automatically at a higher risk of developing thromboembolic disease and should therefore receive appropriate prophylaxis<sup>2</sup>. Although the application of compression stockings can appear simple, it must be remembered that inappropriately worn stockings have the potential to cause significant problems. Unevenly distributed and excess pressure may break the skin, especially in older, malnourished patients and those with thin, brittle skin. Here we present the case of an older male who was referred to a local plastic surgery service for the management of a pressure sore on the anterior aspect of his left lower leg as result of compression stocking application for the treatment of venous ulcer disease. Although an extreme case, it highlights the importance of careful assessment, application, and monitoring of compression stockings.

#### CASE DESCRIPTION

The patient is an 76-year-old male who lives alone in sheltered accommodation and mobilises with the aid of a zimmer frame. His past medical history includes type II diabetes and venous disease. He was initially referred to the vascular surgeons in 2002 with a venous ulcer on the medial aspect of his left ankle and it was recommended that he be treated conservatively with grade 3 compression stockings (40–60 mmHg). At that time it was noted that he was overweight and had chronic oedema of both legs and feet. Initially the stockings were beneficial and the ulcer resolved, however, their continual use subsequently caused problems. The patient developed a new ulcer on the anterior aspect of his shin, proximal and

lateral to the original ulcer, thought to be as a result of pressure from the compression stockings. This new ulcer was initially managed in the community by the district nursing team. However, they continued to apply the compression stockings on top of the dressings and subsequent deterioration was noted. After 10 months of conservative treatment, with continued deterioration and no progress observed, the patient was reviewed by his GP and referred to the local plastic surgery service for further advice.

When the patient presented to our unit for his initial assessment, he had the stockings applied over the wound. It was noted that the stockings were rolled at the point of the ulcer, creating increased pressure in this area. The skin, subcutaneous fat and extensor retinaculum of the anterior lower leg and foot had been eroded with the wound measuring 5 x 10 cm (Figure 1). When the patient held his foot in a neutral position his necrotic tibialis anterior tendon was clearly visible and bow stringing out in front of his ankle (Figure 2). Wound swabs in the community had grown *Staphylococcus aureus*, however the wound was not clinically infected with no surrounding cellulitis.

Initial management included intravenous flucloxacillin and careful pre-operative assessment for a debridement under general anaesthesia. The surgical debridement removed all non-viable tissue, including the necrotic, exposed tibialis anterior tendon (Figure 3). The wound was not suitable for immediate skin grafting. Negative pressure wound therapy was applied for 12 days until microbiology swabs were clear and sufficient healthy granulation tissue was present. Thirteen days post-debridement the patient underwent a skin grafting procedure. His recovery was slowed by a catheter-related urinary sepsis, however he went on to make a good recovery. He was transferred to his local district hospital for rehabilitation 3 weeks following admission and discharged from there with a package of care 2 weeks later.

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**Figure 1. Right lower leg ulcer with visible tibialis anterior.**



**Figure 2. Exposed necrotic tibialis anterior tendon.**



**Figure 3. Wound post debridement.**

He was last seen in the community by the plastic surgery specialist nurses 2 months post-surgery where it was noted that all his wounds had healed and he was discharged from our care.

## DISCUSSION

This case highlights the importance of ensuring that patients are appropriately assessed and monitored for suitability for compression stockings and that measures are taken to ensure they are worn appropriately. If not managed accordingly compression stockings may cause unintended harm as demonstrated by this case, which represents the more severe end of the spectrum. It is of particular importance to ensure that there are no folds in the fabric, allowing even distribution of pressure throughout the limb and to avoid creating a focus of higher pressure over one specific area. If adverse effects from wearing compression stockings are identified, early intervention, which may include removing the source of the problem and liaison with other teams, may help limit the extent of the complication and reduce the need for surgical intervention. Early discussion with the GP, followed by referral to tissue viability nurse should be undertaken if the patients fail to respond to compression therapy.

This case also acts as a reminder that although common things are common, not all ulcers in the legs are vascular in origin. When treatment (such as compression stockings) does not appear to be working, other causes for problems should be investigated.

There have been a few case reports

published that demonstrate some side effects of compression stockings with two reports of nerve injuries<sup>3,4</sup> and one report of bilateral pressure sores in both popliteal fossae of a paraplegic patient.<sup>5</sup> This patient developed acute linear tears along the line of compression stockings over a 2-week period during hospital admission. The patient's pressure sores were successfully managed conservatively, with discontinuation of the compression stockings and regular dressings.

## CONCLUSION

While an almost everyday intervention, compression stockings are not without potential risks and therefore require correct application and close monitoring, especially in those who are at greater risk of skin damage. Early action is vital when complications do occur to limit the extent of injury and degree of treatment required, and when problems are not responding to the treatment, reassessment is necessary.

## Patient consent

The patient has consented to publication of this article and the associated images.

## Provenance

Freely submitted; not externally peer reviewed.

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